

of the cleistothecium (Fig. 1, *c*). They are at first clavate with a rather thick wall and a slender stalk, the spore-bearing portion $18-22 \times 8-10 \mu$, and contain eight spores. As they mature the spores become septate and darken. Simultaneously the stalk shrivels, the ascus walls become gelatinized, and the spores are set free in the gelatinous matrix above the hymenial layer, apparently completing the process of maturation in the cleistothecial cavity after leaving the asci. Dehiscence is by the separation of the plates of the peridium, beginning at the top and exposing the dark brown spore mass in a cuplike cavity.

ENTOMOLOGY.—*Some new species of Syrphidae from South America*.¹ FRANK M. HULL, University of Mississippi. (Communicated by EDWARD A. CHAPIN.)

In this paper I present the descriptions of several new syrphid flies from South America, most of which have come to hand in the past few years. Several of these have been collected by John Lane, of São Paulo, Brazil. Types, unless otherwise stated, are in the collection of the author. Paratypes where present have been deposited in the collection of Mr. Lane.

***Mesogramma mulio*, n. sp.**

Related to *norma* Cur. and *productus* Cur., but there are pairs of small detached spots on the third and fourth abdominal segments; this pattern is much like that of *planiventris* Lw., but *mulio* is much larger, the abdomen slenderer, etc.

Male. Length 7.5 mm. *Head*: Cheeks, face, and front wholly pale yellow, the latter with a tiny, median impression, the facial sides white-pubescent. The antennae are light orange, the third joint barely brownish above, the face quite produced forward and pinched. Vertex brilliant violet behind ocelli, golden between them, the occiput brassy-brown pollinose, its pile wholly light yellow. *Thorax*: Mesonotum dark olive-brown, the sides broadly yellow, becoming a little darker above the wing and on the postcalli. Down the middle of the mesonotum is a diffuse, pale, steel-bluish, brownish-yellow pollinose, somewhat diffuse vitta that runs all the way to the scutellum. The dark mesonotal disk where it meets the yellow side margin is dark, brownish-black, vittate. Pleurae metallic black, the humeri, propleurae, posterior two-thirds of the mesopleurae, upper portion of sternopleurae all pale yellow, which last section is also densely, silvery pubescent. The scutellum is deep brownish yellow, with subappressed blackish pile and two longer marginal black bristles near the middle and a long, well-developed golden ventral fringe. *Abdomen*: Elongate with parallel sides from the middle of the second segment almost to the middle of fourth; deep brownish yellow marked with black as follows: A posterior fascia along the margin of the first segment, narrowed in

¹ Received April 17, 1941.

the middle, slightly expanded on each side but not reaching the sides of the segment. There is a parallel-sided, narrow, basal fascia on the second segment, a wider one on the posterior margin which is evanescent on the posterior half, which reaches the lateral margin and is slightly wider there. On the third segment there are similar fasciae, the basal one considerably more evanescent and the posterior one not quite so distinct. Fourth segment similar to the third except that the basal fascia leaves only traces widely separated on either side. Both of these segments have faint, medial, approximated, linear, sublunate vittae whose anterior ends turn outward and are knobbed. Fifth segment with a linear, median, black vitta two-thirds the length of the segment. Hypopygium yellowish brown with black spots. The abdominal pile is black, except on the base of the first segment, its sides, the extreme corners of the second, and a few hairs on the corners of the fifth segment. *Legs*: Pale yellow, the hind femora with a distal smoky annulus, their tibiae with a middle annulus. Pile of legs yellow except on whole distal half of middle femora, base of their tibiae as far as the middle ventrally, whole of hind tibiae and their femora except the base and dorsal surface of the hind tarsi, which are all black pilose. *Wings*: Hyaline, the stigma brown.

Holotype: One male, São Paulo, Juquia, Brazil, J. Lane, collector.

Mesogramma gemini, n. sp.

Related to *duplicatus* Wied., but the face is much shorter, the abdominal pattern different.

Female. Length 5.5 mm. *Head*: Face yellow, the antennae orange, the third joint blackish above, the front widely black, the sides narrowly yellow. *Thorax*: Mesonotum broadly olive-brown pollinose, with a wide steel-blue medial linear vitta; the lateral margins are obscurely brownish yellow. Scutellum wholly yellowish brown, long, sparse, black pilose; the propleura is dark. *Abdomen*: Oval, the sides conspicuously emarginate, dark yellowish brown, marked with black as follows: All but the anterior corners and lateral margins of the first segment, the wide marginal fasciae on the base and apex of the second segment, each occupying about a third the length of the segment. The third and fourth segments are each marked alike—there is a wide, black, posterior, marginal fascia occupying two-fifths of the length of the segment. There is also a very narrow submedial and sublateral, basal, marginal fascia, and the intervening yellowish-brown area contains a pair of narrowly separated, small triangles, which are connected to the posterior fascia by slender linear vittae, the spaces between the posterior fasciae indented. Fourth segment with a large, opaque, black, medial, basal spot, the posterior margin of the segment narrowly shining black as well as the posterior half of the lateral margin. *Legs*: Light yellow, the hind tarsi blackish above throughout, the hind tibiae and apical half of hind femora appearing darker because of the black pile. *Wings*: Hyaline; stigma pale brown.

Holotype: One female, São Paulo, Brazil, March 22, J. Lane, collector.

Mesogramma flamminea, n. sp.

Related to *M. basilaris* Wied., but the face almost wholly yellow, scutellum yellow marginate, abdominal pattern different.

Male. Length 4.5 mm. *Head*: Face, front, and antennae yellow, the arista brownish, the vertex blackish and feebly shining, black pilose. *Thorax*: Mesonotum broadly shining metallic, dark brown-pollinose with a brownish median vitta, the narrow lateral margins, the humeri and propleurae pale yellow. Scutellum metallic greenish black, the margin broadly brownish yellow.

Abdomen: Narrowly oval, shining, reddish brown. All the first segment except the anterior corners and a narrow anterior margin, shining black; this black extends diffusely onto the basal fourth of the second segment. The abdominal pile is short and black, the reddish hypopygium chiefly pale pilose, with a diffuse blackish spot on the left side. *Legs*: Light yellow; the hind femora has a conspicuous, subapical, black annulus. The hind tibia has a sub-basal annulus; much of the tibial and femoral pile is golden. Hind metatarsi black on the basal half, their last two tarsal joints black; intervening joints brown. *Wings*: Hyaline, the stigma pale yellow.

Female. Similar, the face brownish yellow, barely darker in the middle. Abdomen yellow with conspicuous, posterior, black, marginal fasciae; there are posterior black corners that extend laterally up most of the length of the segment and in some cases completely along the lateral margin. The second segment has a basal and a medial fascia dividing the yellow. Third and fourth segments with a pair each of small, narrowly separated comma-like spots.

Holotype: One male, São Paula, Severinia, Brazil, A. G. Silva, December 1940. Allotype: One female, same data in the collection of John Lane. Paratypes: One male and female in copula, seven males and one female (four male paratypes in the collection of John Lane), same data.

Volucella calochaeta, n. sp.

Related to *prescutellaris* Will., but the front as well as the face is light brownish yellow.

Male. Length 9.5 mm. *Head*: Eyes exceedingly densely light brown, long pilose. Cheeks (except for a very diffuse narrow brown vitta), face, and front light brownish yellow. Frontal pile and an extensive patch covering the low broad tubercle and vertical pile black; elsewhere the pile is pale. The face is considerably produced both downward and forward. The antennae are elongate, light orange; the pale arista has 32 rays above. *Thorax*: Broadly coppery-violaceous in the middle with a greenish cast, the sides broadly yellowish brown, the propleurae, mesopleurae, and humeri yellowish brown and golden pilose, the remainder of the pleurae darker brown, almost black in places with yellowish pile. There is a single, heavy, tuberculous bristle on the upper part of the mesopleurae, three on the notopleurae, three above the base of the wing, three on the postcalli, six pairs on the scutellum, all of which are quite long. There are some finer, long, black bristles before the scutellum; the mesonotal pile is pale yellow with a few black hairs. Scutellum yellow, with long, fine black bristly pile and yellow ventral fringe. *Abdomen*: Chiefly brown to black, marked with a pair of large, basal and lateral brownish-yellow spots on the sides of the second segment, diffusely separated by brown in the middle and on the sides of the third segment a pair of almost equally large, basal, pale yellow spots widely separated by black in the middle. The first segment is light brownish; the fourth segment is very dark brown, black on the apical margin, the hypopygium yellow. The pile of the posterior third of the first segment and narrowly up its middle is black. The pile of the third segment is black on almost the posterior half, on the black middle vitta, and on a portion of the yellow on each side of this, and there is a narrow basal fringe of black pile on this segment. The remainder of the yellow spots are yellow pilose. Basal two-thirds of the pile of the fourth segment yellow, the remainder black. *Legs*: Dark brown, the hind tibiae and tarsi and the anterior tibiae and tarsi much darker, almost black, the pile of legs everywhere black. *Wings*: costal and subcostal cells upon their basal half, first and second sub-

basal cells yellowish. The marginal and submarginal cells are brownish. The marginal cell is closed in the costa on one side, opened on the other.

Holotype: One male, received many years ago in some miscellaneous material from Brazil, no further data.

Volucella azurina, n. sp.

Related to *mexicana* Macq. but equipped with four prescutellars and scutellum with five pairs of heavy bristles. Related also to *fulvicornis* Bigot, but the face is dark brown, the abdomen is blue; there are also scutellar differences, etc.

Female. Length 13 mm. *Head*: Cheeks black, face and front and vertex reddish brown, the front a little darker. The face is considerably produced downward and forward; the tubercle is moderately prominent, deeply excavated above but continued almost straight downward from the tubercle to the epistoma. The pile of the face, front, and vertex is black, the face with considerable whitish pubescence throughout but more extensive on the flattened area below the antennae. The sides of the front are also whitish pubescent. The antennae are orange-brown, the third joint about twice as long as wide, the apical half a little narrower than the basal part, and a little darker dorsally and apically; the arista is pale yellow, with 30 rays above. *Thorax*: Mesonotum and pleurae shining blackish, the former with slight purplish cast, the sides of the mesonotum also dark. The pile of the entire thorax and scutellum including its fringe is black with the exception of whitish pile on the anterior portion of the mesopleurae, the humeri, and some in the anterior middle of the mesonotum. The mesopleura has three rather long, heavy, tuberculous black bristles, notopleura with five, base of wing with three, postcalli with five, and scutellum with six pairs. The scutellum itself is dark, shining, mahogany, reddish brown. *Abdomen*: Very broad and rounded, the disk only gently convex and entirely metallic, purplish black throughout over which is a strong bluish reflection; its pile is black, dense, short, and stubby upon second and third segments and much longer and sparser upon the fourth segment. *Legs*: Black and black-pilose, the apex of the anterior femora the base of their tibiae dark brown. *Wings*: Dark brown upon the basal anterior half, including first and second basal cells and a slight marginal area posterior to the latter and distal to the former. The marginal cell is well closed, its apex not expanded.

Holotype: One male, Bonito, Brazil. Received several years ago in miscellaneous material from Brazil, no further data.

Ceriogaster aureopila, n. sp.

Related to *auricaudata* Will., but the mesonotal sutures bordered with short golden pile and without opaque black marginal spots. Apex of abdomen appressed golden pilose. Scutellum blackish.

Female. Length 6.5 mm. *Head*: Eyes with a median transverse impressed line just above the middle. Vertex blackish about ocelli behind the vertex and occiput is metallic brassy black, which from an oblique view is yellow-pollinose. The lower half of the front is more or less light yellowish-brown pubescent. On each side of the bare facial carina is a narrow vertical stripe of light-colored pubescence, and there is a similar one along the angular anterior margin of the cheek. Antennae elongate, the third joint three times as long as the second, the entire antennae and arista pale yellowish brown. Back of upper occiput with black spines. *Thorax*: A row of spines lies across the anterior part of a mesonotum; just back of the spines is a dull, yellowish

transverse fascia of pubescence that appears almost golden in places and throughout which arises some very short golden pile. The fascia is well interrupted in the middle. There is a similar interrupted fascia lying along the anterior suture continued down over the upper part of the mesopleura upon its posterior margin. Just before the scutellum there is a more obscure fascia or subtriangular spot. Scutellum dark black with very short black pile, the posterior margin dull brassy. *Abdomen*: Club shaped, the first two segments not greatly narrower than the decumbent club-shaped third and fourth segment. Sides of the first segment steel blue, becoming brassy at the extreme margin. Second segment extensively black throughout the middle, with a faint metallic luster, along the lateral margin becoming bright and coppery and brassy. All the third and fourth segments golden with coppery luster, except for a large, somewhat opaque, blackish triangle in the middle of the second segment, the base of which lies along the posterior margin of the segment. Pile of the last two segments flat, appressed, everywhere bright golden, dense, and directed diagonally toward the midline from each anterior corner. The middle pile, however, directed straight backward. *Legs*: Femora dark brown, almost black on the basal half of the pair, with a somewhat metallic luster that in places grows decidedly brassy. Pile of the legs everywhere pale yellowish, except upon the anterior surface of the fore tibiae and all their tarsi. Hind femora rather thickened, its ventral margin with a double row of black spines, which reach almost from apex to base. Fore tarsi black and rather flattened, the other tarsi and tibiae light yellowish brown, the hind pair somewhat pale at base. *Wings*: Tinged with brown, the apical third obliquely rather smoky, the stigmal cell smoky brown.

Holotype: One female, Barro Colorado, Panama. August 1938, F. M. Hull, collector.

ENTOMOLOGY.—*Description of a new bat bug (Hemiptera-Heteroptera: Cimicidae).*¹ HARRY G. BARBER, U. S. Bureau of Entomology and Plant Quarantine.

Recently Drs. Glen M. Kohls and William L. Jellison, of the U. S. Public Health Service at Hamilton, Mont., submitted for determination a number of specimens of a new bat bug which were collected in the Ney Cave, near Hondo, Tex. With the permission of the collectors a description of this new form is herewith presented.

***Primicimex*, n. gen.**

Head longer, than wide, impunctate, somewhat longer than pronotum, strongly convex and setose above and beneath; eyes small in both dorsal and lateral view, projecting, remote from anterior angles of pronotum; tylus broad; jugae short; antenniferous tubercles prominently visible from above; maxillary lobes well developed; antenna with the first two elongate segments incrassate, subequal, last two segments slender; rostrum short, stout, not surpassing base of head. Pronotum longer than wide; anterior and posterior margins concave, fringed with long setae; lateral and posterior edges narrowly margined and fringed with long setae. Hemelytra orbicular, expanded laterally, in contact behind scutellum, roughly rugose, surface and margins with long setae. Scutellum wider than long. Abdomen of male asymmetrical;

¹ Received May 10, 1941.